



2009 Smart Growth Summít Creating Complete Communities

HERE COMES THE SUN Solar Energy And Renewable Resource Protection



About Gulf South Solar

- Based in Baton Rouge since 2003
- Leading solar provider for LA and the Gulf South.
- Over 90 systems installed
- Distribute, design, sell and install solar PV (photovoltaic) modules, solar water heaters and solar pool heater systems
- Residential and commercial



Solar 101: Everything you need to know in 5 Slides SOLAR IN LOUISIANA



System Types

Grid-tied

- Sells power back to grid / Most economical
- System shuts off when grid is down

Off Grid

- Not connected to the grid. Ideal for camps
- Modules (panels) run the home and charge the batteries during the day. House runs off battery power at night.
- Home must be well designed/ energy efficient / sustainable
- Sizeable investment in batteries

Grid-tie with Battery Back-up

- Sells power back to grid and has back-up power during outages
- Emergency loads wired through a sub-panel that will run off solar/battery power when grid is down



How does it work?





What makes an ideal site?

- 30 degree pitch on a south facing roof
- Roof is in good condition.
 New roofs are best
- No shade
- An accessible electrical service panel
- Space for both the inverter and batteries



6kw, Alexandria



System Sizing

Size of PV Array

- The customer could be limited by the available roof space
- Rule of Thumb: 10 watts/square foot
- (1kW = 100 square feet) Double this for thin-film

Kilowatt hours

- Rule of thumb is 1kw for every 150kwh/mo.
 Financing
 - 1kw system = \$10,000. (before tax credits)
 - Commercial grid-tie system installed: \$6.80/watt (30kW system approximately \$204,000)

Battery

• Battery Back up: 1 kWh per battery



Tax Credits Demystified

- State- 50% off the cost of EACH residential system purchased up to \$12,500 per system. There is no limit to how many systems a person can purchase and it covers PV systems, solar thermal and solar pool heaters.
 - The 50% state tax credit is a refundable tax credit.
 Customers get their tax refund back after they file their taxes. This refund is considered taxable income by the Federal Government.
- Federal- 30% tax credit. This tax credit is a true credit and is a direct reduction of the taxes owed. There is no cap for this tax credit.
- Resources: <u>www.lses.org</u>



Solar Installations in Louisiana

CASE STUDIES





The Island Golf Course

30 kW Grid-Tie system Plaquemine, LA





Case Study 1 The Island Golf Course

Task

Reduce their electrical bills

Details

- High energy bills
- Have a fleet of battery operated Golf Carts
- Members were concerned about aesthetics

Solution

- GSS Installed and designed a 30kw grid-tie System on their cart barn
- Used low profile Sharp Modules







The Island Golf Course

- During installation, Hurricane Gustav hit southeastern Louisiana
- The Island Golf Course sustained substantial damage from high winds
- The sections of the roof where the rail was mounted were protected and were unharmed
- Only the areas not yet covered with rail sustained damage.





SOLECTRIA

The Island Golf Course



The Island Clubhouse



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System Status Now [2009-08-11 10:48:35 CDT]
Online [last update: 2009-08-11 10:48:23 CDT]
System Status, Inverter-Direct : Active
Energy generated today: 44.2 kWh
Lifetime energy generated: 38764.3 kWh
Lifetime CO₂ emission offset: 48455 lbs
System AC power now: 10781.3 W
<u>View Inverter-Direct</u>



The Island Golf Course

- Their 30kW system is largest commercial installation in Louisiana
- Recently added a 3kW ground mount system







Make it Right Foundation

2.1kW Grid-Tie Residential System 9th Ward, New Orleans, LA





Case Study 2 Make It Right Foundation

Task

Install solar on a home that is shaded by a tree

Details

- The tree is significant to residents
- Energy efficient home was designed by Trahan Architects
- Price was a consideration

Solution

 GSS Installed 2.1kW of high-efficiency SolarWorld modules with Enphase Micro-inverters





Trahan Architects

Model for 1708 Tennessee Photo courtesy of Trahan Architects





Roof View

Model photo courtesy of Trahan Architects





Completed Home

1708 Tennessee 9th Ward, New Orleans





Enphase Micro-inverter

High efficiency inverters are installed under each module to optimize each modules performance





Close-up of Enphase Micro-inverter

2.1 kW system will reduce green house gas emission by 44 tons of CO_2 (over 25 years).





Tree shaded most of the roof top

2.1kW of SolarWorld Modules





Happy Homeowners

Electrical bills reduced from \$400/month to \$30/month



Project Overview

- Integrated sustainable building systems
- Integrated Cradle to Cradle philosophy
- Minimum 5'.0" slab elevation above grade
- 2.1kW system produces about 300kwh a month
- Bills went down from \$400/month to \$30/month (from original home with similar footprint)







Historic Home: Glencoe Plantation

2.4kW Grid-Tie with Battery Back-up Jackson, LA





Case Study 3 Glencoe Plantation

Task

• Install a solar power system on an historic home to power their deep water well pump during times of power outages

Details

 After Hurricane Katrina, the homeowners were without water for 3 weeks.

Solution

 Ground mount 2.4kW of modules along the fence line to preserve the homes historic presence that will power their pump for their water well





Off-Grid Ground Mount

3.2kW Grid-Tie with Battery Back-up Enterprise, LA





Case Study 4 Off-Grid Camp

Task

Power off-grid camp for 100% of its energy needs

Details

- Insufficient south facing roof
- Home is energy efficient
- Far away from grid. Costly to run lines

Solution

 Install a 3kw ground-mount system with sizable battery bank with nearly 32kwh of storage









Lakefront Home

3.9kW Thin Film Grid-Tie system with Battery Backup Slidell, LA





Case Study 5 Lakefront Home

Task

 Install Solar on a new home under construction in Slidell that can withstand hurricane force winds

Details

• Home was being built with standing-seam metal roof.

Solution

 Install thin film on a standing seam metal roof with battery back-up





Thin Film

GSS solar installers apply the thin film to the standing seam metal roofing before it is installed by the roofers





Thin Film

After the roofers installed the metal roofing, GSS hooked up the wiring and covered the wiring with the ridge cap











Grant Resources and New Solar Legislation SOLAR IN LOUISIANA



Grant Resources

Energy Efficiency Conservation Block Grant

- Louisiana gets \$13.8 Million
- Each parish is awarded a set amount. Work with your parish gov't to request these funds.
- Parishes must apply through FedConnect to be considered: <u>https://www.fedconnect.net/FedConnect/PublicPages/Fe</u> <u>dConnect_Ready_Set_Go.pdf</u>
- General Questions about EECBG Program: <u>eereic@ee.doe.gov</u> or 1-877-EERE-INFO



Grant Resources

USDA Rural Energy for America Program

- Assistance with grants and loan guarantees
- Designed for small businesses and agriculture
- Funds each project up to 25%
- You may combine grant and loan guarantees up to 75% of project cost
- www.rurdev.usda.gov/rbs/farmbill
- Contact Kevin Boone: kevin.boone@la.usda.gov

General Grant Information

- http://www.grants.gov/
- <u>dnr.louisiana.gov</u>



New Solar Legislation

- HB858 (Ponti): Expands eligibility for the wind and solar energy system tax credit to taxpayers who purchase and install such systems in residential properties. (ie: Builders can have solar installed on a home they are selling and receive the tax credit)
- HB 733 (Ledger): House Bill 733 is a tax credit for the green jobs industry. How much the tax credit will be depends on how much the project is. For projects between \$100,000 and \$300,000 there is a tax credit of 10%, for projects between \$300,000 and \$1 million there is a 20% tax credit, and for projects greater than \$1 million there is a tax credit of 25%. No more than \$60 million in tax credits shall be granted for state certified green jobs per year.
- SB224 (Gautreaux): Authorizes creation of sustainable energy financing districts by local governmental subdivisions and provides for issuance of bonds and property assessment programs for solar and energy efficiency projects.



LSES Solar Tour of Homes

Fall Tour Date: October 3, 2009 <u>Rebecca@lses.org</u>

www.lses.org







Pride, LA 12kW Residential System





Tickfaw, LA *3kW Pole Mount System*





Mandeville, LA 3.2kW Grid-Tie with Battery Back-up



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